

WHAT IS CLAIMED IS:

69. A holographic laser scanner comprising:

5 a scanner housing having width, length and height dimensions, and a scanning window;

a plurality of lasers beam sources for producing a plurality of laser beams;

a holographic scanning disc, rotatable about an axis of rotation, and supporting a plurality of holographic optical elements for scanning and focusing said plurality of laser beams so as to produce a plurality of scanning planes;

10 a plurality of beam folding mirrors disposed about said holographic scanning disc, for directly folding said plurality of scanning planes in a direction above said holographic scanning disc so as to project a complex scanning pattern through said scanning window and within the spatial extent of a predefined 3-D scanning volume disposed directly above the said holographic scanning disc; and

15 a plurality of parabolic light collecting mirrors disposed beneath said holographic scanning disc,

wherein the geometrical dimensions of only said beam folding mirrors in conjunction with the geometrical dimensions of said holographic scanning disc substantially determine said width and length dimensions of said scanner housing, and

20 wherein said geometrical dimensions of only said beam folding mirrors and parabolic light collecting mirrors beneath said holographic scanning disc substantially determine said height dimension of said scanner housing.

70. The holographic laser scanner of claim 69, wherein each said laser beam source comprises  
25 a laser diode, and wherein said holographic laser scanner further comprises a photodetector arranged with each parabolic said light collecting mirror for producing scan data signals.